

REMARKS

Claims 1, 3 – 12, 14 – 15, and 17 – 20 are currently pending. Claims 1 – 6, 12, 13, and 16 were rejected as being unpatentable over U.S. Patent No. 5,018,934 to Steinkamp et al. (“Steinkamp”) in view of U.S. Patent No. 3,592,106 to Baughman (“Baughman”). These same claims were purportedly also rejected as anticipated by either Baughman or by U.S. Patent No. 4,089,251 to Louviot (“Louviot”), although Examiner provided no specific explanation of this latter grounds for rejection. Applicants believe the claims as amended are sufficient to overcome the cited references, however, either alone or in combination.

Claims 5 – 10 and 16 were rejected due to claim informalities, which have been overcome. Examiner also suggested that claim 16 would be subject to a double patenting restriction in light of claim 13. Claim 13 has been canceled, thus making that rejection moot.

With regard to the prior art rejections, claim 1 has been amended to include the limitations of original claim 2 which states in part that “the restricting means including seals that define between the wall of the cylinder and the piston first and second fixed-volume chambers movable with the piston.” This limitation is neither taught nor suggested by the cited references. As Examiner has conceded, Steinkamp does not teach first and second chambers at all. Baughman, on the other hand, clearly teaches that the chambers (46, 58) are also variable volume chambers. This is clearly shown in Figures 1 and 2 of Baughman. Note that in Figure 1, seal 40 is pushed to the right-most side of groove 38, whereas in Figure 2, seal 40 is pushed to the left-most side of groove 38. This shows that the volume of chamber 46 is larger in Figure 2 than it is in Figure 1. Likewise,

the volume of chamber 58 is larger in Figure 1 (where seal 52 is pushed to the right-most side of groove 50) than in Figure 2 (where the seal is pushed to the left-most side of the groove). Because Baughman teaches that the seals move freely within the chamber (or at least within the groove portion of the chamber), the reference fails to teach or suggest a first and second "fixed-volume chamber" as now required by claim 1.

Reference to Figures 2 and 3 of Louviot also show that Louviot teaches that the seals S_1 , S_2 , S_3 , S_4 also move freely within their respective grooves and, hence, the "chamber" (such as chamber R_1) is a variable volume chamber. For at least this reason, Louviot also fails to teach or suggest the claim limitation that the restricting means includes "seals that define between the wall of the cylinder and the piston first and second fixed-volume chambers movable with the piston."

Claims 3 – 11, which depend from claim 1 are patentable over the reference by virtue of their dependence from claim 1 as well as by virtue of their further defining limitations.

Independent claim 12 has also been amended to recite that the restricting means includes "seals located on the piston that define between the cylinder and the piston first and second fixed-volume chambers movable with the piston." For the same reasons provided above with respect to claim 1, claims 12 and 14 – 16 are patentably distinct over the cited prior art.

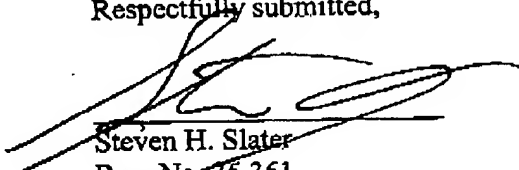
Examiner has indicated that claim 7 would be allowable if re-written in independent format to include all the limitations of the base claim from which it depends. Newly added independent claim 17 includes all of the limitations of originally filed claim

7 and originally filed claim 1 from which it depended. Hence, it is believed that claim 17 and claims 18 – 20 that depend therefrom are in condition for allowance.

Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 – 10, 12 – 14, and 16 and that claims 1, 3 – 12, 14 – 15 and 17 – 20 be passed to issuance. Examiner is invited to contact Applicants' attorney to address any questions or comments that would expedite issuance of the present application.

Respectfully submitted,

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